

REMARKS

An Office Action was mailed on February 3, 2003. Claims 3 - 23 are currently pending in the application. Applicants cancel claims 10 and 11 without prejudice or disclaimer, re-present claims 10 and 22 as new independent claim 24, and amend claims 3, 12 and 14 – 17. No new matter is introduced.

OBJECTED CLAIMS

Applicants thank the Examiner for indicating that claims 12, 13, 15 and 19 - 23 are objected to as each being dependent on one of rejected base claims 10 and 17, but that each would be allowable if rewritten in independent form including all of the limitations of its associate base claim and any intervening claims. Applicants rewrite claims 10 and 11 as new claim 24, and amend claims 12 and 15 so that claims 12, 13 and 15 depend from new claim 24. Claims 19 – 23 depend from claim 17. As Applicants submit that amended claims 17 and 24 are currently allowable for the reasons cited below, Applicants' respectfully request that this objection be withdrawn.

REJECTION UNDER 35 U.S.C. § 112

Claims 3 – 9 are rejected under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim that which Applicants regard as their invention. With regard to claim 3, the Examiner objects specifically to the terms “at least one of plane facing” as reading unclearly and “on the circuit substrate” as not clearly having antecedent basis. Applicants amend the first term as “at least one of plane facing”. Applicants introduce “a circuit element arranged on said a plane of the one adjacent circuit substrate facing which faces said heat sink member” in order to provide sufficient antecedent basis for “on the circuit substrate”. Applicants thank the Examiner for indicating that claims 3 – 9 are otherwise allowable, and with these amendments, request that the rejection be withdrawn.

REJECTION UNDER 35 U.S.C. § 102

Claims 10, 11, and 16 - 18 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,400,566 to Ootori and by U.S. Patent No. 6,205,027 to Nakajima. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ootori. Claims 10, 11 and 17 are also rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,411,522 to Frank et al. Applicants cancel claims 10 and 11 without prejudice or disclaimer, re-present claims 10 and 11 as new claim 24, amend claims 14 and 16 to depend from new claim 24, amend claim 17 to recite a circuit substrate unit as an element of electronic equipment, and respectfully traverse these rejections.

Independent claims 24 and 17 disclose circuit substrate unit comprising first and second circuit substrates, a heat sink member and an electromagnetic shield member, wherein the heat sink member and the electromagnetic substrate member are sandwiched between the first and second circuit substrates. Independent claim 24 provides an additional limitation requiring each of the first and second circuit substrates to serve as heat sources, and a plane of the heat sink member facing the second circuit substrate to have a radiation fin and a plurality of protruding portions.

Ootori discloses an electronic device with heat generating and heat absorbing parts, including a substrate unit 13 for mounting a circuit element 51 and at least one heat sink member 52, wherein heat sink member 52 is arranged between adjacent substrate units 13, 31. Unlike the invention of Applicants' claims 24 and 17, Ootori fails to disclose a unit in which first and second circuit substrates sandwich a heat sink member and an electromagnetic shield member. Applicants note that the plain and ordinary meaning of the verb sandwich is "to insert or enclose" (Merriam-Webster's Collegiate Dictionary, Merriam-Webster, Inc, Springfield, MA, tenth edition, 2001), and respectfully submit that substrate 31 of Ootori fails to enclose shield 55

and sink 52, as a substantial gap exists between substrate 31 and shield 55 and sink 52 as they are positioned in unit 1.

Nakajima discloses a structure and method for mounting a circuit module. Unlike the invention of Applicants' claims 24 and 17, Nakajima fails to disclose an electromagnetic shield member sandwiched with a heat sink member between first and second circuit substrates. Applicants respectfully continue to disagree with the Examiner's characterization of Nakajima's CPU holder 26 as an electromagnetic shield, as holder 26 comprises a series of lateral rails for which Nakajima's specification makes no claim to electromagnetic shielding. Moreover, as in the case of Ootori, a substantial gap exists between heat sink 28 of Nakajima and circuit substrate 24, and thus Nakajima fails to disclose a Applicants' claimed device in which first and second circuit substrates sandwich a heat sink member and an electromagnetic shield member. In addition, with respect to Applicants' claim 24, Nakajima's heat sink 28 discloses a plurality of conical protrusions (see, e.g., FIG. 3 of Nakajima) and fails to disclose Applicants' claimed radiation fin.

Frank discloses an integrated computer module with an EMI shielding plate 140. Unlike Applicants' claimed invention of claims 3, 10 and 17, Frank fails to disclose a heat sink member disposed between adjacent circuit boards. The Examiner suggests the heat sink member may be equated to tabs 141, 143 of shielding plate 140. Tabs 141, 143 however function to position plate 140 in the module, and do not come into contact with a circuit element or otherwise operate to function as heat sinks. Applicants further note that Applicants' claims 24 and 17 recite distinct heat sink and shield members, while Frank discloses only a single member 140 that the Examiner asserts provides both heat sink and shielding functions. Franks discloses an additional heat sink 153 that, unlike Applicants' claimed device, is not sandwiched between boards 150, 131. The presence of heat sink 153 and characteristics of shielding plate 140 (for example, elastomeric buttons 136 isolating shielding plate 140 from circuit board 131) further suggest that shielding

plate 140 does not serve to draw heat away from circuit boards 131, 150, and therefore does not operatively qualify to be considered a heat sink.

Accordingly, Applicants respectfully submit that independent claims 24 and 17 are anticipated by none of Ootori, Nakajima and Frank, and are therefore allowable. As claims 14, 16 and 18 respectively depend from allowable claims 24 and 17, Applicants respectfully submit that claims 14, 16 and 18 are also allowable for at least this reason. In addition, Applicants respectfully submit that that the hood portion of claim 18 is disclosed by none of Ootori, Nakajima and Frank, and is also allowable for this reason.

CONCLUSION

An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that claims 3 – 23, consisting of independent claims 3, 17, and 24 and the claims dependent therefrom, is in condition for allowance. Passage of this case to allowance is earnestly solicited. However, if for any reason the Examiner should consider this application not to be in condition for allowance, he is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged on Deposit Account 50-1290.

Respectfully submitted,



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